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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/059,562	04/14/1998	TOSHIMITSU KONUMA	0756-1790	8686

22204 7590 01/15/2002

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MCLEAN, VA 22102

EXAMINER

NGUYEN, DUNG T

ART UNIT	PAPER NUMBER
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2871

DATE MAILED: 01/15/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

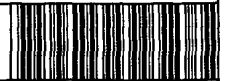
# Office Action Summary

Application No.  
09/059,562

Applicant(s)  
Konuma et al.

Examiner  
Dung Nguyen

Art Unit  
2871



-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on Dec 27, 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 31-33, 38, 39, 49-51, 55-58, 65-67, 69, 99, 106-110, and 115-135 is/are pending in the application.
- 4a) Of the above, claim(s) 99, 106-108, 116-119, 122, 123, and 128-132 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 31-33, 38, 39, 49-51, 55-58, 65-67, 69, 109, 110, 115, 120, 121, 124-127 and 133-135 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claims \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- a) ☐ All b) ☐ Some\* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \*See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

## Attachment(s)

- 15) ☐ Notice of References Cited (PTO-892) 18) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 19) ☐ Notice of Informal Patent Application (PTO-152)
- 17) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). \_\_\_\_\_ 20) ☐ Other: \_\_\_\_\_

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***DETAILED ACTION***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 12/27/2001 has been entered.

Newly submitted claims 116-119, 122-123 and 128-132 are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons set in the office action dated 06/30/2000. In particular, the above claims drawn to a method for forming a liquid crystal electro-optical device where an electro-optical modulating layer comprising a mixture liquid crystal material (e.g, liquid crystal material and an uncured resin).

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 116-119, 122-123 and 128-132 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

***Claim Rejections - 35 USC § 102***

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

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2. Claims 31-32, 109, 120 and 124 are rejected under 35 U.S.C. 102(b) as being anticipated by Tsuboyama, US Patent No. 4,796,979.

The above claims are anticipated by Tsuboyama's figure 1 which disclose an LCD matrix device and a method for forming thereof comprising:

- a pair of substrates (1a, 1b);
- ferroelectric liquid crystal (5);
- an electrode (2) provided over the pair of substrates;
- an orientation film (3);
- a resin layer (4);
- transmitted light amount inherently response to the applied voltage.

It should be noted that, the limitation of "said resin is formed by disposing a mixture of the liquid crystal and a curable resin between the pair of substrates and curing said curable resin" recites a one-step process which does not further limit the structure of the device claims. Therefore, the process limitation does not have patentable weight.

***Claim Rejections - 35 USC § 103***

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

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4. Claims 33, 49-51, 55-58, 65-67, 110, 115, 121, 125 and 127 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuboyama, US Patent No. 4,796,979 , in view of Tsuboyama, US Patent No. 4,775,225.

Regarding claims 33 and 126, Tsuboyama ('979) disclose the claimed invention as described above except for antiferroelectric liquid crystal material. It would have been obvious to one of ordinary skill in the art at the time of the invention to use antiferroelectric liquid crystal because such material is well known in the art for tristable switching in order to improving the contrast of the overall display.

Regarding claims 67 and 69, Tsuboyama ('979) disclose the claimed invention as described above except for transmitted light amount of a pixel taking a halftone. It is well known in the art to use a halftone in transmitted light amount for clearing a display state in a ferroelectric display. Therefore, it would have been obvious to one skill in the art to use a halftone in transmitted light amount in order to rewrite a display state in a ferroelectric liquid crystal display device.

Regarding claims 49-51 and 115, although Tsuboyama ('979) do not disclose an active matrix display type, it would have been obvious to one of ordinary skill in the art at the time of the invention to form an active matrix LCD type since it is a common practice in the art to provide a better contrast and viewing angle.

Regarding claims 110, 121, 125 and 127, although Yamamoto et al. do not disclose an UV curable resin based material for the resin layer, it would have been obvious to one of

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ordinary skill in the art at the time of the invention to use UV curable resin based material for the resin layer since it is a common practice in the art to form a desirable pattern.

Regarding claims 55-58 and 65-66, the modification to Tsuboyama ('979) discloses the claimed invention except for the resin having a form of protrusion or column. Tsuboyama ('225) disclose a resin layer can be formed as a protrusion or column (307) from a resin layer (306) in an LCD device (fig. 3A). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to form a resin film having a form of protrusion or column over an orientation film as a spacer between two substrates in order to keep a LCD at a constant distance at a uniform and constant thickness.

5. Claims 133-135 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuboyama, US Patent No. 4,796,979 , in view of Yamamoto et al., US Patent No. 5,221,980.

Regarding claims 133-135, Tsuboyama ('979) does not disclose that the liquid crystal layer does not have a memory characteristics. Yamamoto et al. do disclose the use of the ferroelectric liquid crystal material having no memory characteristic (see Summary of the Invention). Therefore, it would have been obvious to one skilled in the art at the time of the invention was made to form a Tsuboyama' s device having a liquid crystal material as shown by Yamamoto et al. (i.e., ferroelectric liquid crystal material having no memory characteristic) in order to avoid losing the input information in an LCD device (Summary of the Invention).

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### ***Double Patenting***

6. Claims 31-33, 38-39, 49-51, 55-58, 65-67, 69, 109-110, 115, 120-121, 124-127 and 133-135 stand rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-4 and 17-19 of U.S. Patent No. 5,594,569 as stated in the previous office action.

It should also be noted that, the limitation of “said resin is formed by disposing a mixture of the liquid crystal and a curable resin between the pair of substrates and curing said curable resin” recites a one-step process which does not further limit the structure of the device claims. Therefore, the process limitation does not have patentable weight, so as the claims in the present application are broader in scope than those in the Patent and the application’s claims can be read on the Patent’s claims.

### ***Response to Arguments***

7. Applicant's arguments dated 12/27/2001 have been considered but are moot in view of the new ground of rejection as noted above.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Dung Nguyen whose telephone number is (703) 305-0423. The fax phone number for this Group is (703) 746-7730.

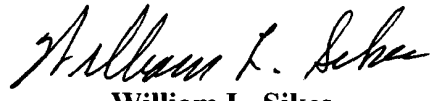
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Any information of a general nature or relating to the status of this application should be directed to the group receptionist whose telephone number is (703) 308-0956.

DN  
01/14/2002

  
**William L. Sikes**  
*Supervisory Patent Examiner*  
*Group 2871*